

## Best Available Copy

## (54) SEMICONDUCTOR DEVICE

(11) 4-74446 (A) (43) 9.3.1992 (19) JP

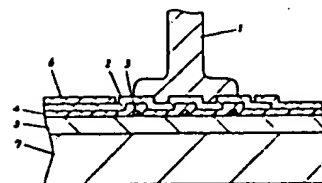
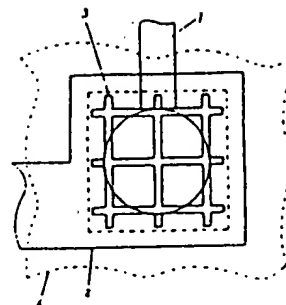
(21) Appl. No. 2-189101 (22) 16.7.1990

(71) MATSUSHITA ELECTRON CORP (72) MASANOBU HIROSE

(51) Int. Cl. H01L21/60

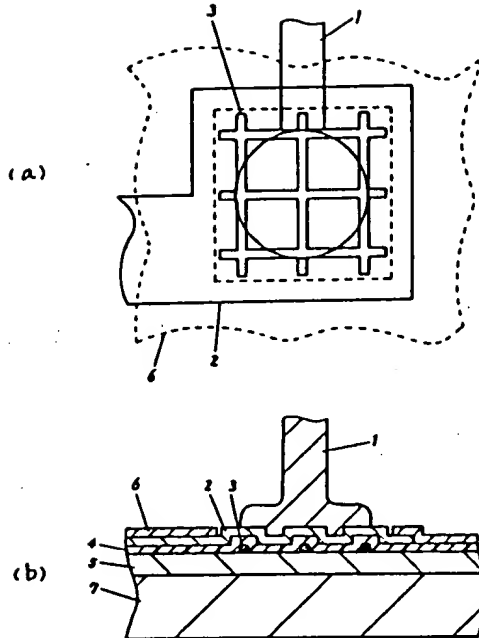
**PURPOSE:** To prevent the coming-off of a bonding wire from a semiconductor chip electrode and, at the same time, to increase the joint area of the bonding wire with the semiconductor chip electrode so as to improve their joining strength by making the cross section of the semiconductor chip electrode to have a recessing and projecting surface.

**CONSTITUTION:** After wiring layers 3 are formed on an insulating film 5 in matrix-like states, an interlayer insulating film 4 is formed on the layers 3. When a semiconductor chip electrode 2 is formed on the film 4, a semiconductor chip electrode 2 having a cross section with a projecting and recessing surface is formed, because projecting parts are formed where the layers 3 exist and recessing parts are formed where the layers 3 do not exist. When a bonding wire 1 is connected with the electrode 2, the joint area of the wire 1 with the electrode 2 becomes very large and the joining strength is improved. In addition, since the joining surface is uneven, the joining strength becomes very strong even against a lateral stress and coming-off of the wire 1 and deterioration of the conductive state can be prevented.



第 1 図

- 1... スパニングワイヤー  
(金属配線)
- 2... 半導体チップ電極
- 3... 配線層
- 4... 層間絶縁膜
- 7... 半導体基板



第 2 図

